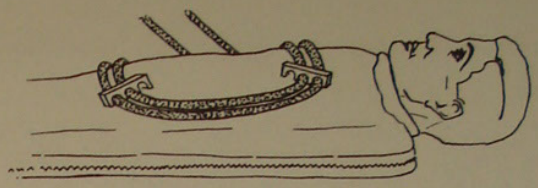
FEVER

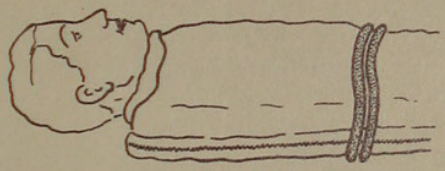
After wrapping patient in toweling or terry cloth to absorb perspiration he is placed in a specially made, canvas, insulated bag with zipper opening on three sides. A double loop of cable is placed on patient from chest to pelvis on outside of bag. The Inductance Cable can also be double looped around waist of patient, on the outside of bag



CABLE DOUBLE LOOPED FROM CHEST TO PELVIS

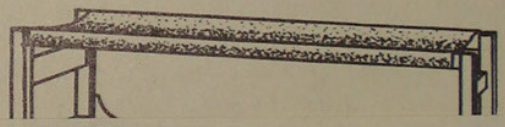
In this manner temperature elevations as high as 106 degrees can be attained in between one and two hours. When the desired temperature has been reached the machine can be shut off. Because of the complete insulation of patient the high temperature can be maintained for hours.

Oral and rectal temperatures should be taken every fifteen minutes during treatment. This is done through a small zipper opening midway on side of bag. Salt water should be given during treatment to maintain the chloride balance.



CABLE CAN ALSO BE DOUBLE LOOPED AROUND WAIST OF PATIENT

THE INDUCTANCE CABLE IS GENERALLY RECOGNIZED AS THE MOST SAFE AND SATISFACTORY MEANS FOR PRODUCING HIGH DEGREES OF FEVER.



The Liebel-Flarsheim Co. 303 West Third Street, Cincinnati, Ohio

INSULATED FEVER BAG

CAT.NO.		PRICE	CODE WORD
8410	RANTOS FEVER BAG - Designed for use as an accessory to any of the various types of fever-inducing apparatus. Bag is covered with an olive green drill and padded with No.1 prime Kapok as the heat insulating material - lined with a fine lightweight rubberized lawn. A zipper extends from the right shoulder down the side and across the bottom to the left foot. On left side near center of bag is an 18" zipper for taking rectal temperatures, etc. An easily adjustable collar closely fits the neck of patient. Top of bag arranged so that it can be raised off of patient, thus permitting freedom of movement.		
	RANTOS FEVER BAG - (Dimensions 76" long, 36" wide. Weight packed 25 lbs.).	$54.50	tulor
8412	Terry Cloth Blanket, 78" x 90" - for RANTOS FEVER BAG	7.50	tuoal
8413	Leather Carrying Straps - for RANTOS FEVER BAG.	2.50	tueso

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FEVER

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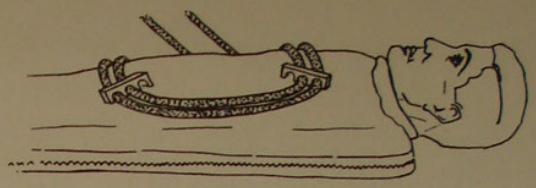

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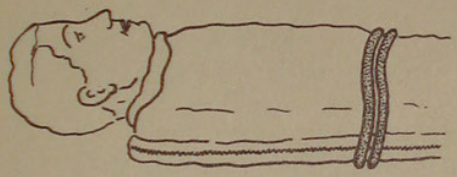

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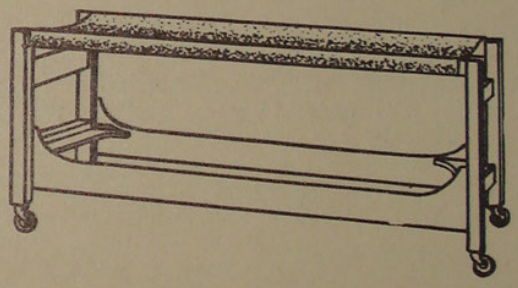
Non-metallic treatment table is recommended for this work but an ordinary cot can be used provided patient is placed upon non-metallic mattress at least 4 inches thick. See "L-F Handbook on Short Wave" for further details.



SPECIAL CANVAS TOPPED NON-METALLIC TREATMENT TABLE. WRITE FOR DETAILS.

TECHNIQUE "DON'TS"

DON'T cross leads when using Pad treatment.
DON'T apply applicators directly to skin.
DON'T use more power than is easily tolerated by the patient.
DON'T allow metal objects in or around the electrical field.
DON'T forget spacers or toweling under pads and cuffs.
DON'T forget to push terminal plugs ***all the way in.***
DON'T allow patient to grasp leads or touch applicators during treatment.
DON'T treat patient on metallic table or bed with springs unless covered by non-metallic mattress at least four inches thick.

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SERVICE NOTES

TUBES: It is to be expected that after prolonged use, the vacuum tubes run out their normal life cycle and will need replacing. New tubes should be ordered direct from this Company or through the dealer who supplied the machine. Tubes supplied by us are tested thoroughly for maximum electro-therapeutic service. This insures your getting the proper tube from which best results can be obtained.

All defective tubes are to be returned for inspection in same container as replacement tube was received in. Tubes proving defective in service within the guarantee period will be adjusted, based on the use they have provided.

As a rule, the tube does not burn out -- there is simply noted a gradual decrease in the current output of the machine. Continue to use the tube until the output falls below a satisfactory therapeutic value. In ordering a new tube, be sure to give serial number of your machine as several types of tubes are in use and you must have the proper tube for your particular unit. Then there is a possibility of a leakage developing in the glass of the tube, causing it to become gassy in which case it will blow fuses.

PAD APPLICATORS: As all rubber deteriorates somewhat under the influence of heat, it will be necessary to replace the rubber covered electrodes after long use. This will occur only after a long time, but should be looked out for. Long exposure to the rays of the sun or an ultra-violet lamp also deteriorates the rubber. If the rubber develops cracks, becomes "spongy" or brittle, this indicates that replacements are in order.

The Cooling Fan is equipped with oilless bearings. However, to insure maximum life it is suggested that it be oiled at least twice yearly.

ALWAYS GIVE SERIAL NUMBER OF MACHINE
WHEN WRITING FOR INFORMATION OR REPLACEMENT PARTS.

ADDITIONAL INFORMATION WILL BE GLADLY FURNISHED BY

THE LIEBEL-FLARSHEIM COMPANY

303 WEST THIRD STREET : : : : : CINCINNATI, OHIO

Printed in U. S. A.

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FEVER THERAPY
Section No. 4

COPY

A. R. HUFFORD, M. D.
Grand Rapids, Mich.

October 16, 1935

Mr. S. C. Holston
c/o The Liebel-Flarsheim Co.
303 West Third St.,
Cincinnati, Ohio

Dear Mr. Holston:

As requested in your letter, I am very glad to furnish you with four of our records furnished at random from fever therapy cases.

All of these, of course, as you know, were given in my office with the L-F Short Wave Generator with the patient enclosed in an insulated zipper bag. We have not given more than 100 such treatments for various conditions, chiefly infectious arthritis, syphilis of the central nervous system, gonorrhea with complications and multiple sclerosis.

I have been very much interested in the beneficial effects obtained with this type of treatment in asthmatic bronchitis. While we have only given treatment in two such cases, they have been so completely relieved, that there is no doubt as to its efficacy.

The results with infectious arthritis of a chronic type vary, depending upon the length of time the disease has lasted and also upon the general condition of the individual at the time of taking treatments. However, the results have been good enough to warrant the use of fever therapy in this type of disease, and when joint destruction has not progressed too far, fever therapy, if given often enough and the temperature maintained at approximately 104° to 105° R. for six to seven hours, good results are obtained in a high percentage of cases treated.

Of the two cases of multiple sclerosis which we have treated there have been good results, and improvement in their walking and relief of the distressing symptoms.

You will note that these four charts show that around 2 hours was required to bring the temperature up to the desired therapeutic point. This factor varies enormously between patients. In some cases we will get temperatures in excess of 105 in less than an hour, and in others, of the seemingly heat resistant type, longer time is required. I believe about an hour and a half is an average.

Yours very truly,

A. R. Hufford, M.D.

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THINGS TO OBSERVE CAREFULLY DURING TREATMENT

PULSE The rise of pulse corresponds to the rise of temperature. After the patient has reached the desired temperature and has become adjusted to the treatment, the pulse usually drops to about 120. If the pulse goes above 160 with an unfavorable change in quality, discontinue treatment.

The pulse is the best guide as to the patient's condition. Any unusual change of rate, rhythm, or quality should be given immediate consideration.

TEMPERATURE If there is a sudden rise in temperature, turn off the machine and open the side of bag. Sprinkle warm water over the body and direct an electric fan up and down over body. Within several minutes the temperature usually drops. If patient's condition is good, continue treatment as before. If the temperature does not come down readily, discontinue treatment. Occasionally it is necessary to give such patients a heart stimulant, 50% intravenous glucose injections, and O-CO2 inhalations. With the exercise of caution such patients may be treated later.

MUSCLE CRAMPS If patient complains of stiffness or cramps of the muscles it may indicate early tetany. Usually Calcium Gluconate (10 cc.) intramuscularly relieves this condition. This is given without removing the patient from the fever bag. Between treatments such patients should take Calcium Gluconate or Calcium Diphosphate by mouth.

BREATHING Any difficulty in breathing (air hunger) should be noted. Occasionally the patient may develop anoxemia. Give oxygen until he is relieved (usually ten to fifteen minutes). Repeat if necessary.

EXAMINATION Every time you take patient's temperature, inspect skin for marked erythema. Covering the body with a light cotton blanket will relieve any burning sensation. By changing the blanket frequently, the patient is much more comfortable and burns are prevented.

COMPLAINTS Give careful attention to each complaint the patient makes and investigate thoroughly because it may be an indication of some unusual difficulty. Never ignore the patient's complaints.

SEDATIVES Sodium amytal 3-6 gr. doses, Morphine sulphate 1/4 to 1/2 gr. doses, Pantapon 1/3 to 2/3 gr. doses, may be used. The choice depends upon the reaction of the patient.

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FEVER THERAPY
Section No. 4

Mrs. C. B. — C.N.S. Lues — June 15, 1935

Time	Weight	Tempt.	Pulse	Resp.	Genr'l.Cond.	Fluids (Water)	Elim.	Remarks
8:10	119½	98.4	88	20	Good	III oz.	To Lav.	Amm. Bromide grs. II Comp. 100 7-3500
9:00		98.8	96	20				Started to perspire on right side of face.
9:30		99.8	100	20	Good			Right side of face flushed.
10:00		100.6	100	20		II oz.		Complains of a sensation like electric shock in
10:30		101.8	108	20	Good			right leg.
10:35						III oz.		Pantapon grs. 1/3
11:00		104 R	120	22	Good			Patient taking treatment very well.
11:15		105 R	124	22	Good			Machine off.
		104 M				IV oz.		Feels drowsy.
11:40		105.8 R	124	22	Good			
12:00		105.8 R	124	22	Good	III oz.		
12:30		105.8 R	124	22				Sleeping.
1:00		106.2 R	124	22	Good	IV oz.		Bag opened a little.
1:15		106.4 R	130	22		II oz.		Pulse good volume, but irregular. Bag opened up full length but patient drowsy.
1:25		106.6 R	130	22		II oz.		Legs and arms bathed with cold water. Alcohol rub.
1:30		106.2 R	130	22	Good			
1:45		105.8 R	130	22		III oz.		Patient feeling good.
1:50		105.6 R	128	22				Redness leaving face. Bag closed.
2:00		105.4 R	128	22	Good	III oz.		Sleeping.
2:30		105.4 R	120	22		IV oz.		Sleeping.
3:00		105.4 R	120	22		IV oz.		Perspiring freely.
4:00		105	124	22	Good			
4:15								Out of pack.
5:15		100.8	100	20				Sleeping.
6:30		98.2	88	20	Good			Up and dressed. Feels dizzy.
7:30								Home.

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FEVER THERAPY
Section No. 4

Mr. J. F. — Arthritis — April 19, 1935

Time	Weight	Tempt.	Pulse	Resp.	Genr'l.Cond.	Fluids	Elim.	Remarks
8:30	140	98.6	80	20	Good	Salt H_2O VI oz.	To Lav.	Ammonium Bromide, Comp. gr. XO
8:34								Started 7-3600
8:50								Face flushed.
9:00		99.2	84	20	Good	Salt H_2O IV oz.		Perspiring freely.
9:30		100	96	20	Good			
10:00		101	112	22	Good	H_2O II oz.		
10:30		103.6 R	132	22	Good			Very, very hot and beginning to be uncomfortable.
10:45						H_2O III oz.		Pantopon gr. 1/3 "H"
11:00		104 R	132	24	Good	H_2O IV oz.		More comfortable.
11:15						H_2O IV oz.		Machine off.
11:30		104.4 R	132	24	Good	H_2O VI oz,		
12:00		104.4 R	132	24	Good	H_2O VI oz.		Sleeping.
12:15						H_2O III oz.		
12:40		104 R	132	24	Good	H_2O IV oz.		Machine on 6-3000
1:00		104 R	128	24	Good	H_2O II oz.		Sleeping for short intervals.
1:30		104.5 R	128	24	Good	Salt H_2O II oz.		Very hot, but bearable.
1:45								Machine off.
2:00		105 R.	132	28	Good	H_2O III oz.		Turned on right side. Comfortable.
3:00		104.5 R	132	28	Good			Comfortable, but sleepy.
4:30		104.4 R	128	24	Good	H_2O III oz.		Out of bag.
5:30		102	112	20	Good	H_2O		Very comfortable, sleeping.
6:30	136	98.6	100	20	Good			Up and dressed.
7:00								Home.

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FEVER THERAPY
Section No.4

Mrs. L. — Multiple Sclerosis — August 21, 1935

Time	Weight	Tempt.	Pulse	Resp.	Genr'l.Cond.	Fluids (Water)	Elim.	Remarks
8:00	123	98	84	20	Good	IV oz.		Sedormid Tabl. II Started (No. 7)
8:20								Complains of headache.
9:00		98.6	88	22	Good			
9:30		99.6	120	22	Good	IV oz.		Complains of hard breathing.
10:00		103 R	120	22	Good	II oz.		Complains of heat (No.5)
10:20		104.4 R	132	32	Good			Pantopon Grs. 1/3 "H"
						IV oz.		Resting some better, but groans and moans a great deal. Perspiring freely.
10:30		104.8 R	132	32	Good			Machine off.
11:00		104.8 R	132	32				Turned on side, sleeping for short intervals.
12:00		104.4 R	132	32	Good	II oz.		Tried to void.
1:00		104 R	124	38	Good	II oz.		Sleeping.
2:00		103.8 R	124	28	Good			Resting very well.
2:30								Tried to void.
3:00		103 R	120	24	Good			Sleeping
3:30		102 R	120	24	Good	IV oz.	VI oz.	Taken out of pack. Sleeping.
6:30	119	98.8	84	20	Good		IV oz.	Home.

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FEVER THERAPY
Section No.4

Mrs. A. H. — Arthritis — September 4, 1935

Time	Weight	Tempt.	Pulse	Resp.	Genrl.Cond.	Fluids (Water)	Elim.	Remarks
8:00	124¼	98	84	20	Good			Bromural Tab. ½ at home.
8:15						IV oz.		Bromural Tab. ½ " "
9:00		99.6	96	20	Good			Seems short of breath.
9:15		100.6	108	20	Good			Perspiring freely.
9:45		102.6	120	22	Good			
9:55								Pantopon grs. 1/3
10:10		104.2 R	120	22	Good			Resting comfortably.
10:15								Machine off.
10:30						II oz.		
10:45		105.8 R	120	22		Sips of Water		Patient comfortable, no complaints.
11:15		106.4 R	128	22	Good	Sips of Water		Dozing. Comfortable. Bag opened part way.
11:45		106.4 R	132	22	Good	Sips of Water		Comfortable.
12;15		105.8 R	132	22	Good			Sleeping for very short intervals.
12;45		105.6 R	132	22	Good	VI oz.		Patient feels sleepy. Sleeping.
2:00		105 R	120	20	Good	IV oz.		Sleeping.
3:00		104.4 R	112	20	Good	III oz.		Sleeping
4:00		103.6 R	96	20	Good	II oz.	Voided III	Out of pack.
4:30								Sleeping.
5:00		99 M	88	20	Good			Dressed, feels a little
6:30		98 M	84	20	Good			nauseated when up, but has not vomited.
7:00								Sleeping.
7:15	123½							Home.

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FEVER THERAPY

Because of the comparative safety and ease of producing hyperpyrexia by electrical means, in comparison with the former dangers and troubles associated with the inoculation methods, this therapy is becoming increasingly popular.

Do not make the mistake, however, of taking lightly the possibility of fatalities through the use of any method of fever production. When the bodily temperature is raised to 105-107 and maintained there, the body undergoes a vast systemic change which occasionally will be too much for the patient. No one should attempt to administer fever therapy who is not fully aware of the dangers involved,who is not fully capable of taking care of the treatment and any emergencies which might arise and who is incapable of deciding, in advance, what patients should or should not be submitted to such rigorous treatment.

Dr. Upton Giles, in his reprint filed with this section, gives a number of indications for fever therapy on pages 268 to 271. It will be noted that in paresis,neurosyphilis, gonococcic infection and arthritis, marked success has been obtained and several other difficult diseases show promise of satisfactory response.

In such conditions, some of them recognized as practically incurable by other methods, the end justifies the means and fever therapy is indeed proving to be a blessing.

The following few pages give an outline of essential points in fever technique. Dr. Giles' reprint and Dr. Hufford's fever charts will help the reader to an understanding of the procedure. Refer also to pages 35 and 36 of the "L-F Handbook on Short Wave".

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PROCEDURE FOR GIVING FEVER THERAPY TREATMENTS

DAY OF TREATMENT

1. No breakfast.
2. Weigh patient. If patient does not maintain weight from one week to the next, space treatments two weeks apart.
3. Blood pressure.
4. Give antiluetic therapy to luetics.
5. Give sedative if indicated.
6. T.P.R. (Mouth and Rectal. After temperature is at desired level, take only rectal.)
7. Place patient in fever bag, take two turns of inductance cable around bag or large pancake on top of patient's torso, outside of bag.

   a. Use output of Short Wave Unit full power to start and reduce as temperature begins to rise appreciably. Take temperature and pulse every 15 minutes during rise, unless rise is rapid, then every 10 minutes. When the temperature has been elevated to desired level take temperature and pulse every 5 minutes using machine only as necessary to maintain patient's temperature at desired level. Then take temperature and pulse every 10-15 minutes.

   b. Give patient salinized water as he desires and tolerates. (Iced 0.6% NaCl solution). Average 3 liters a treatment. If patient objects, alternate with plain ice water.

   c. Fruit juices and milk and food are contra-indicated, as they produce nausea. Coca-Cola may be given during treatment if desired and tolerated. A quart of milk within the 6 hours following treatment is desirable.

8. After removing patient from bag -

   a. Give alcohol sponge.

   b. Blood pressure (if indicated, repeat later).

   c. T.P.R. every 15 minutes until normal.

   d. The patient's reaction to the treatment determines the length of time he should rest. Usually after 2 hours of rest the patient is able to take a shower. If not, he is given a bed bath. Following this, if the T.P.R. and blood pressure are within normal limits, he is dismissed.

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